

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

List of Claims:

Claim 1. (Currently Amended) A liquid crystal display device, comprising:

- a first substrate having a plurality of pixel regions;
- a plurality of gate and data lines on the first substrate;
- a thin film transistor at a crossing portion of the gate and data lines;
- a first auxiliary electrode under the data line;
- a plurality of second auxiliary electrodes in a horizontal direction ~~of~~ in the pixel region;
- a pixel electrode in the pixel region;
- a plurality of protrusions on a second substrate, the protrusions being formed between the second auxiliary electrodes; and
- a liquid crystal layer between the first and second substrates.

Claim 2. (Original) The device according to claim 1, further comprising a plurality of slits in the pixel electrode.

Claim 3. (Original) The device according to claim 2, wherein the slits correspond to the plurality of second auxiliary electrodes.

Claim 4. (Original) The device according to claim 1, further comprising a connecting electrode connecting the first auxiliary electrode to another first auxiliary electrode under an adjacent data line.

Claim 5. (Original) The device according to claim 1, further comprising:

- a black matrix layer on the second substrate;
- a color filter layer on the black matrix layer; and
- a common electrode on the color filter layer.

Claim 6. (Original) The device according to claim 2, wherein the liquid crystal layer has a symmetric alignment with respect to the protrusion and the slit.

Claim 7. (Original) The device according to claim 1, wherein the pixel region is divided into a plurality of domains depending on the number of second auxiliary electrodes and the protrusions.

Claim 8. (Original) The device according to claim 7, wherein the number of second auxiliary electrodes are at least two and the number of protrusions are at least three.

Claim 9. (Original) The device according to claim 8, wherein the pixel region has at least six domains.

Claim 10. (Original) The device according to claim 7, wherein the gate line induces a fringe field to form abnormal electric fields in the domains near the upper and lower ends of the pixel region.

Claim 11. (Original) The device according to claim 1, wherein the first auxiliary electrode becomes a repair line when the data line is broken.

Claim 12. (Original) The device according to claim 11, wherein a connection between the first auxiliary electrode under the broken data line and another first auxiliary electrode under an adjacent data line to the broken data line is cut off by cutting a portion of the second auxiliary electrode.

Claim 13. (Original) The device according to claim 1, wherein the first and second auxiliary electrodes are of the same materials as the gate line.

Claim 14. (Original) The device according to claim 1, wherein the first and second auxiliary electrodes are formed from one of a conductive metal material from the group consisting of aluminum (Al), aluminum alloys, chromium (Cr), molybdenum (Mo), tungsten (W) and copper (Cu).

Claim 15. (Original) The device according to claim 1, wherein the protrusion is includes one of an organic insulating material and a photosensitive organic insulating material.

Claim 16. (Original) A method for manufacturing a liquid crystal display device, comprising:

forming a plurality of gate lines on a first substrate in a first direction, the first substrate having a plurality of pixel regions;

forming a plurality of data lines on the first substrate in a second direction;

forming a thin film transistor having a gate electrode, an active layer, a source electrode and a drain electrode near a crossing portion of the gate and data lines;

forming a first auxiliary electrode and a plurality of second auxiliary electrodes on the first substrate, the first auxiliary electrode having first and second portions spaced apart from each other under the data line, the second auxiliary electrode connecting the second portion of the first auxiliary electrode to a first portion of another first auxiliary electrode under an adjacent data line;

forming a plurality of protrusions on a second substrate, the protrusions being formed between the second auxiliary electrodes; and

forming a liquid crystal layer between the first and second substrates.

Claim 17. (Original) The method according to claim 16, further comprising forming a plurality of slits in the pixel electrode.

Claim 18. (Original) The method according to claim 17, wherein the slits correspond to the plurality of second auxiliary electrodes.

Claim 19. (Original) The method according to claim 16, further comprising forming a connecting electrode connecting the first auxiliary electrode to another first auxiliary electrode under the adjacent data line.

Claim 20. (Original) The method according to claim 16, further comprising:

- forming a black matrix layer on the second substrate;
- forming a color filter layer on the black matrix layer; and
- forming a common electrode on the color filter layer.

Claim 21. (Original) The method according to claim 17, wherein the liquid crystal layer has a symmetric alignment with respect to the protrusion and the slit.

Claim 22. (Original) The method according to claim 12, wherein the pixel region is divided into a plurality of domains depending on numbers of the second auxiliary electrodes and the protrusions.

Claim 23. (Original) The method according to claim 22, wherein the number of second auxiliary electrodes are at least two and the number of protrusions are at least three.

Claim 24. (Original) The method according to claim 23, wherein the pixel region has at least six domains.

Claim 25. (Original) The method according to claim 22, wherein the gate line induces a fringe field to form abnormal electric fields in the domains near the upper and lower ends of the pixel region.

Claim 26. (Original) The method according to claim 16, wherein the first auxiliary electrode becomes a repair line when the data line is broken.

Claim 27. (Original) The method according to claim 26, wherein a connection between the first auxiliary electrode under the broken data line and another first auxiliary electrode under the adjacent data line to the broken data line is cut off by cutting a portion of the second auxiliary electrode.

Claim 28. (Original) The method according to claim 16, wherein the first and second auxiliary electrodes are of the same material as the gate line.

Claim 29. (Original) The method according to claim 16, wherein the first and second auxiliary electrodes are formed one of a conductive metal material from the group consisting of aluminum (Al), aluminum alloys, chromium (Cr), molybdenum (Mo), tungsten (W) and copper (Cu).

Claim 30. (Original) The method according to claim 16, wherein the protrusion includes one of organic insulating material and photosensitive organic insulating material.

Claims 31 - 39 (Canceled)

Claim 40. (Original) A liquid crystal display device, comprising:

a first substrate having a plurality of pixel regions, the pixel region having first and second regions;

a plurality of gate and data lines crossing each other on the first substrate;

a thin film transistor having a gate electrode, a semiconductor layer, a source electrode and a drain electrode at a crossing portion of the gate and data lines;

an auxiliary electrode having a plurality of portions in the second region of the pixel region;

a pixel electrode in the pixel region, the pixel electrode having at least one slit corresponding to the portion of the auxiliary electrode;

a black matrix layer on a second substrate;

a color filter layer on the black matrix layer;

a common electrode on the color filter layer; and

a protrusion on the common electrode, the protrusion being formed around the second region and in the second region at positions corresponding to the portions of the auxiliary electrode that does not correspond to the slit.

Claim 41. (Original) The device according to claim 40, wherein the auxiliary electrode has a zigzag pattern.

Claim 42. (Original) The device according to claim 41, wherein the slit corresponds to a diagonal portion of the auxiliary electrode.

Claim 43. (Original) The device according to claim 40, wherein the drain electrode is extended in a horizontal direction to the gate line.

Claim 44. (Original) The device according to claim 40, wherein the source electrode has a U-shape and the drain electrode is spaced apart from the source electrode.

Claim 45. (Original) The device according to claim 40, wherein the second region is divided into a plurality of domains.

Claim 46. (Original) The device according to claim 45, wherein each domain has a symmetric liquid crystal alignment with respect to the portion of the auxiliary electrode.

Claim 47. (Original) The device according to claim 40, wherein the gate line forms a fringe field in the first region.

Claim 48. (Currently Amended) A method for manufacturing a liquid crystal display device, comprising:

- forming a first substrate having a plurality of pixel regions, the pixel region having first and second regions;

- forming a plurality of gate and data lines crossing each other on the first substrate;

- forming a thin film transistor having a gate electrode, a semiconductor layer, a source electrode and a drain electrode at a crossing portion of the gate and data lines;

- forming an auxiliary electrode having a plurality of portions in the second region of the pixel region;

- forming a pixel electrode in the pixel region, the pixel electrode having at least one slit corresponding to ~~the~~ a portion of the auxiliary electrode;

- forming a black matrix layer on a second substrate;

- forming a color filter layer on the black matrix layer;

- forming a common electrode on the color filter layer; and

forming a protrusion on the common electrode, the protrusion being formed around the second region and in the second region at positions corresponding to the portions of the auxiliary electrode that does not correspond to the slit.

Claim 49. (Original) The method according to claim 48, wherein the auxiliary electrode has a zigzag pattern.

Claim 50. (Original) The method according to claim 49, wherein the slit corresponds to a diagonal portion of the auxiliary electrode.

Claim 51. (Original) The method according to claim 48, wherein the drain electrode is extended in a horizontal direction to the gate line.

Claim 52. (Original) The method according to claim 48, wherein the source electrode has a U-shape and the drain electrode is spaced apart from the source electrode.

Claim 53. (Original) The method according to claim 48, wherein the second region is divided into a plurality of domains.

Claim 54. (Original) The method according to claim 53, wherein each domain has a symmetric liquid crystal alignment with respect to the portion of the auxiliary electrode.

Claim 55. (Original) The method according to claim 48, wherein the gate line forms a fringe field in the first region.

Claim 56. (Currently Amended) A liquid crystal display device, comprising:

a first substrate having a plurality of pixel regions, the pixel region having first and second regions;

a plurality of gate and data lines crossing each other on the first substrate;

a thin film transistor having a gate electrode, a semiconductor layer, a source electrode and a drain electrode at a crossing portion of the gate and data lines;

an auxiliary electrode having a plurality of horizontal electrodes and a vertical electrode, the horizontal electrodes being formed in the second region and spaced apart from each other, and the vertical electrode being formed under the data line and connecting the plurality of horizontal electrodes;

a pixel electrode in the pixel region, the pixel electrode having slits corresponding to the horizontal ~~electrode~~ electrodes;

a black matrix layer on a second substrate;

a color filter layer on the black matrix layer;

a common electrode on the color filter layer; and

a protrusion on the common electrode, the protrusion being formed in a diagonal direction at a space between the slits.

Claim 57. (Original) The device according to claim 56, wherein the drain electrode is extended in a horizontal direction to the gate line.

Claim 58. (Original) The device according to claim 56, wherein the source electrode has a U-shape and the drain electrode is spaced apart from the source electrode.

Claim 59. (Original) The device according to claim 56, wherein the second region is divided into a plurality of domains.

Claim 60. (Original) The device according to claim 59, wherein each domain has a symmetric liquid crystal alignment with respect to the protrusion and the slit.

Claim 61. (Original) The device according to claim 56, wherein the gate line forms a fringe field in the first region.